

What is claimed is:

1. A camera apparatus for encoding a video signal received from photographing means in MPEG video format or equivalent format, encoding an audio signal received from audio inputting means in MPEG audio format or equivalent format, multiplexing the encoded MPEG video signal and the encoded MPEG audio signal, storing the multiplexed data to memory means, the camera apparatus comprising:

I picture generating means for encoding the video signal received from the photographing means corresponding to an intra-frame encoding process so as to generate an I picture in the MPEG video format or equivalent format; and

controlling means for controlling a storing process of the multiplexed data to the memory means,

wherein said controlling means generates a P picture or a B picture in the MPEG video format or equivalent format in such a manner that moving vectors of all macro blocks thereof are 0 and the chronologically preceding picture is copied as an encoded picture,

wherein said controlling means encodes the audio signal received from the audio inputting means in the MPEG audio format or equivalent format so as to generate MPEG audio data, and

wherein said controlling means multiplexes

the I picture, the P picture or the B picture, and the MPEG audio data so as to generate the multiplexed data.

2. The camera apparatus as set forth in claim 1,  
wherein the multiplexed data is composed of  
5 packs with a fixed length, each pack containing MPEG  
video data and MPEG audio data, the time period of the  
MPEG video data being the same as the time period of  
the MPEG audio data.

3. The camera apparatus as set forth in claim 2,  
10 wherein each of the packs contains N video  
frames and/or N audio frames (where N is any integer).

4. The camera apparatus as set forth in claim 1,  
wherein the multiplexed data is composed of a  
plurality of packs, and

15 wherein packs containing the data of the I  
picture of the MPEG video data are placed at  
predetermined intervals.

5. The camera apparatus as set forth in claim 1,  
wherein the multiplexed data is composed of a  
20 plurality of packs, the top pack containing the MPEG  
audio data and the data of the I picture of the MPEG  
video data.

6. The camera apparatus as set forth in claim 1,  
further comprising:  
25 recording means for recording the multiplexed  
data to a record medium.

7. The camera apparatus as set forth in claim 1,

further comprising:

operating means for causing the camera apparatus to perform a recording operation,

5 wherein said controlling means encodes an audio signal in a time period of which said operating means is being pressed so as to generate MPEG audio data.

8. The camera apparatus as set forth in claim 1, further comprising:

10 operating means for causing the camera apparatus to perform a recording operation,

wherein said controlling means encodes an audio signal after said operating means is pressed until a predetermined time period elapses so as to  
15 generate MPEG audio data.

9. The camera apparatus as set forth in claim 1, further comprising:

reproducing means for reproducing the multiplexed data from a record medium;

20 video decoding means for decoding MPEG video data;

displaying means for displaying video data;

and

25 audio outputting means for outputting audio data,

wherein said controlling means causes the memory means to store the multiplexed data reproduced

from said reproducing means and decodes MPEG audio data of the multiplexed data stored in the memory means,

wherein said video decoding means decodes MPEG video data of the multiplexed data stored in the memory means,

wherein said displaying means displays the decoded video data, and

wherein said audio outputting means outputs the decoded audio data.

10. The camera apparatus as set forth in claim 1,

wherein the photographing means outputs a video signal in XGA or VGA format when a still picture photographing mode has been selected in the camera apparatus, and

wherein the photographing means outputs a video signal of which the input video signal received from the photographing means has been thinned out by around 3 when a moving picture photographing mode has been selected in the camera apparatus.

11. A camera apparatus for encoding a video signal received from photographing means and an audio signal received from audio inputting means and storing the encoded signals to memory means, the camera apparatus comprising:

video encoding means for encoding the video signal received from the photographing means corresponding to a first encoding method or a second

encoding method and generating first encoded video data or second encoded video data, respectively;

controlling means for controlling a storing process of data to the memory means and selecting the first encoding method or the second encoding method corresponding to a selected record mode,

wherein said controlling means controls said video encoding means so as to encode the video signal corresponding to the first encoding method when a mode for recording only video data has been selected in the camera apparatus, and

wherein said controlling means controls said video encoding means so as to encode the video signal corresponding to the second encoding means when a mode for recording both video data and audio data has been selected in the camera apparatus.

12. The camera apparatus as set forth in claim 11,

wherein the first encoding method is an encoding method corresponding to JPEG format or equivalent format, and

wherein the second encoding method is an encoding method corresponding to MPEG video format or equivalent format.

13. The camera apparatus as set forth in claim 11,

wherein said controlling means encodes an

audio data signal, multiplexes the encoded video signal and the encoded audio signal, and stores the multiplexed signal to the memory means when the mode for recording both the video data and the audio data has been selected in the camera apparatus.

14. The camera apparatus as set forth in claim 11,

wherein said controlling means causes the memory means to store a video signal received from the photographing means to a first area of the memory means and store the encoded video data or the multiplexed data of the encoded video data and the encoded audio data to a second area of the memory means.

15. The camera apparatus as set forth in claim 14, further comprising:

recording means for recording the encoded video data or the multiplexed data to a record medium,

wherein said controlling means writes the multiplexed data to the memory means, reads the multiplexed data from the memory means, causes said recording means to record the multiplexed data that is read from the memory means to the record medium, causes said video encoding means to encode a video signal corresponding to the first encoding method, writes the encoded signal as first encoded video data to the memory means, reads the first encoded video data from the memory means, and causes the recording means to

record the first encoded video data to the record medium when the mode for recording both video data and audio data has been selected in the camera apparatus.

16. The camera apparatus as set forth in claim

11,

wherein said video encoding means has:

a DCT portion for performing a cosine transform process for an input picture signal;

a quantizing portion for quantizing coefficient data received from the DCT portion; and  
a variable length code encoding portion for encoding an output signal of the quantizing portion using a first encoding table or a second encoding table with variable length code, and

wherein the first encoding table or the second encoding table of the variable length code encoding portion is selected corresponding to an encoding method selected by said controlling means.

17. The camera apparatus as set forth in claim

16,

wherein said video encoding means has:

a header adding portion for adding one of a first header or a second header corresponding to the encoding method selected by said controlling means.

18. The camera apparatus as set forth in claim

13,

wherein the multiplexed data is composed of

packs with a fixed length, each pack containing encoded video data and encoded audio data, the time period of the encoded video data being the same as the time period of the encoded audio data.

5        19.        The camera apparatus as set forth in claim 18,

             wherein each of the packs contains N video frames and/or N audio frames (where N is any integer).

10       20.        The camera apparatus as set forth in claim 11, further comprising:

             recording means for recording the encoded video data or the encoded audio data to a record medium.

15       21.        The camera apparatus as set forth in claim 11, further comprising:

             operating means for causing the camera apparatus to perform a recording operation,

20               wherein said controlling means encodes an audio signal in a time period of which said operating means is being pressed so as to generate encoded audio data.

22.        The camera apparatus as set forth in claim 11, further comprising:

25               operating means for causing the camera apparatus to perform a recording operation,

             wherein said controlling means encodes an audio signal after said operating means is pressed



until a predetermined time period elapses so as to generate encoded audio data.

23. The camera apparatus as set forth in claim 11, further comprising:

5 reproducing means for reproducing encoded video data or encoded audio data from a record medium;

video decoding means for decoding the encoded video data;

displaying means for displaying video data;

10 and

audio outputting means for outputting audio data,

15 wherein said controlling means causes the memory means to store the encoded video data or the encoded audio data reproduced from said reproducing means and decodes the encoded audio data stored in the memory means,

wherein said video decoding means decodes the encoded video data stored in the memory means,

20 wherein said displaying means displays the decoded video data, and

wherein said audio outputting means outputs the decoded audio data.

24. The camera apparatus as set forth in claim 11,

25 wherein the photographing means outputs a video signal in XGA or VGA format when a still picture

photographing mode has been selected in the camera apparatus, and

wherein the photographing means outputs a video signal of which the input video signal received from the photographing means has been thinned out by around 3 when a moving picture photographing mode has been selected in the camera apparatus.

25. A recording method for a camera apparatus for encoding a video signal received from photographing means in MPEG video format or equivalent format, encoding an audio signal received from audio inputting means in MPEG audio format or equivalent format, multiplexing the encoded MPEG video signal and the encoded MPEG audio signal, storing the multiplexed data to memory means, the recording method comprising the steps of:

encoding the video signal received from the photographing means corresponding to an intra-frame encoding process so as to generate an I picture in the MPEG video format or equivalent format;

generating a P picture or a B picture in the MPEG video format or equivalent format in such a manner that moving vectors of all macro blocks thereof are 0 and the chronologically preceding picture is copied as an encoded picture;

encoding the audio signal received from the audio inputting means in the MPEG audio format or

equivalent format so as to generate MPEG audio data;

    multiplexing the I picture, the P picture or  
the B picture, and the MPEG audio data so as to  
generate the multiplexed data; and

5                   storing the multiplexed data to the memory  
means.

26.           The recording method as set forth in claim  
25,

10                   wherein the multiplexed data is composed of  
packs with a fixed length, each pack containing MPEG  
video data and MPEG audio data, the time period of the  
MPEG video data being the same as the time period of  
the MPEG audio data.

15                   27.           The recording method as set forth in claim  
25,

                  wherein each of the packs contains N video  
frames and/or N audio frames (where N is any integer).

28.           The recording method as set forth in claim  
25,

20                   wherein the multiplexed data is composed of a  
plurality of packs, and

                  wherein packs containing the data of the I  
picture of the MPEG video data are placed at  
predetermined intervals.

25                   29.           The recording method as set forth in claim  
25,

                  wherein the multiplexed data is composed of a

plurality of packs, the top pack containing the MPEG audio data and the data of the I picture of the MPEG video data.

30. The recording method as set forth in claim 5 25, further comprising the step of:

recording the multiplexed data to a record medium.

31. The recording method as set forth in claim 25, further comprising the step of:

10 encoding an audio signal in a time period of which operating means that causes the camera apparatus to perform a recording operation is being pressed so as to generate MPEG audio data.

32. The recording method as set forth in claim 15 25, further comprising the step of:

encoding an audio signal after operating means that causes the camera apparatus to perform a recording operation is pressed until a predetermined time period elapses so as to generate MPEG audio data.

20 33. The recording method as set forth in claim 25, further comprising the steps of:

storing the multiplexed data reproduced from a record medium to the memory means and decoding MPEG audio data of the multiplexed data stored in the memory means;

25 decoding MPEG video data of the multiplexed data stored in the memory means;

displaying the decoded video data; and  
outputting the decoded audio data.

34. The recording method as set forth in claim  
25,

5 wherein the photographing means outputs a  
video signal in XGA or VGA format when a still picture  
photographing mode has been selected in the camera  
apparatus, and

10 wherein the photographing means outputs a  
video signal of which the input video signal received  
from the photographing means has been thinned out by  
around 3 when a moving picture photographing mode has  
been selected in the camera apparatus.

15 35. A recording method for a camera apparatus for  
encoding a video signal received from photographing  
means and an audio signal received from audio inputting  
means and storing the encoded signals to memory means,  
the recording method comprising the steps of:

20 encoding the video signal received from the  
photographing means corresponding to a first encoding  
method and storing the encoded video data to the memory  
means when a mode for recording only video data has  
been selected in the camera apparatus; and

25 encoding the video signal received from the  
photographing means corresponding to a second encoding  
method and storing the encoded video data to the memory  
means along with the encoded audio data when a mode for

recording both video data and audio data has been selected in the camera apparatus.

36. The recording method as set forth in claim 35,

5 wherein the first encoding method is an encoding method corresponding to JPEG format or equivalent format, and

wherein the second encoding method is an encoding method corresponding to MPEG video format or  
10 equivalent format.

37. The recording method as set forth in claim 35, further comprising the step of:

encoding an audio data signal, multiplexing the encoded video signal and the encoded audio signal,  
15 and storing the multiplexed signal to the memory means when the mode for recording both the video data and the audio data has been selected in the camera apparatus.

38. The recording method as set forth in claim 35, further comprising the step of:

20 causing the memory means to store a video signal received from the photographing means to a first area of the memory means and store the encoded video data or the multiplexed data of the encoded video data and the encoded audio data to a second area of the  
25 memory means.

39. The recording method as set forth in claim 35, further comprising the step of:

writing the multiplexed data to the memory means, reading the multiplexed data from the memory means, recording the multiplexed data that is read from the memory means to the record medium, encoding a video  
5 signal corresponding to the first encoding method, writing the encoded signal as first encoded video data to the memory means, reading the first encoded video data from the memory means, and recording the first encoded video data to the record medium when the mode  
10 for recording both video data and audio data has been selected in the camera apparatus.

40. The recording method as set forth in claim 35,

wherein the video encoding step has the steps  
15 of:

(a) performing a cosine transform process for an input picture signal;

(b) quantizing coefficient data received at step (a); and

20 (c) encoding an output signal with variable length code at step (b) using a first encoding table or a second encoding table,

wherein the first encoding table or the second encoding table at step (c) is selected  
25 corresponding to the selected encoding method.

41. The recording method as set forth in claim 35, further comprising the step of:

adding one of a first header or a second header corresponding to the selected encoding method.

42. The recording method as set forth in claim 37,

5 wherein the multiplexed data is composed of packs with a fixed length, each pack containing encoded video data and encoded audio data, the time period of the encoded video data being the same as the time period of the encoded audio data.

10 43. The recording method as set forth in claim 42,

wherein each of the packs contains N video frames and/or N audio frames (where N is any integer).

44. The recording method as set forth in claim

15 35, further comprising the step of:

recording the encoded video data or the encoded audio data to a record medium.

45. The recording method as set forth in claim 35, further comprising the step of:

20 encoding an audio signal in a time period of which operating means that causes the camera apparatus to perform a recording operation is being pressed so as to generate encoded audio data.

46. The recording method as set forth in claim

25 35, further comprising the step of:

encoding an audio signal after operating means that causes the camera apparatus to perform a



recording operation is pressed until a predetermined time period elapses so as to generate encoded audio data.

47. The recording method as set forth in claim 35, further comprising the steps of:

storing the encoded video data or the encoded audio data reproduced from a record medium to the memory means and decoding the encoded audio data stored in the memory means;

decoding the encoded video data stored in the memory means;

displaying the decoded video data; and  
outputting the decoded audio data.

48. The recording method as set forth in claim 35,

wherein the photographing means outputs a video signal in XGA or VGA format when a still picture photographing mode has been selected in the camera apparatus, and

wherein the photographing means outputs a video signal of which the input video signal received from the photographing means has been thinned out by around 3 when a moving picture photographing mode has been selected in the camera apparatus.